GEOLOGICAL INVESTIGATION FOR GOLD OCCURENCES AROUND PUGODA IN THE KELANI RIVER

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Geological investigation for gold occurrence in the Kelani River was conducted covering the tributaries of the Kelani River around Pugoda area to study the gold potential and the provenance of its mineralization. The investigation was limited to the main tributary of the Kelani River within 4-5 km radius from the gold occurrences reported at Pugoda. Gold is being recovered dominantly around Pugoda, Kumarimulla and Owitigama in the main river course of the Kelani River which represents forth order streams and the source of sediments may derive from a large drainage basin that encompasses multiple sources. Gold is recovered from the black sand layer of the river bottom. Extensive sand and gem mining in this area also cause mixing of deep and shallow sediments. This river flows nearly south to north along the regional strike and a major shear zone is marked along this zone in the regional geology map.

Garnet, sillimanite spinel, rutile, magnetite, ilmenite, hornblende, tourmaline are the indicator minerals according to the investigation. But the distribution of monazite and zircon does not show this pattern. Further, the northwestern part of the area shows lower potential for gold by these indicator minerals whereas eastern and southern parts allowed for further prospecting for gold.

Provenance of gold could be the dominantly metasedimentary rocks present in the southern and eastern parts of the study area, representing a series of small to medium scale synformal and antiformal structures truncated by intense shear zones. Extensive deformation associated with multiple episodes of high grade metamorphism since Precambrian and late brittle fracturing and shearing events of these Highland Complex rocks might alter and possibly destroyed some of these original gold mineralization.

In addition, although no gold was so far recovered, some locations such as Diyagala and south and east of Avissawella show substantial amounts of indicator minerals such as garnet, sillimanite, spinel, rutile and total heavies, According to

inhabitants land based gem mining was carried out in the hill slopes in Diyagala area and some large fragments of quartz are found in the overburden. In these locations, river is in second order and water flow is not sufficient to concentrate large amounts of heavy minerals.

Keywords: Gold occurence, Kelani river, Provenance, Indicator minerals